WE CLAIM:

1. A process comprising:

heating to a first polymerization temperature a first mixture comprising a free radical polymerizable monomer, a free radical initiator, and a stable free radical compound to polymerize only a portion of the monomer, resulting in a prepolymer composition;

shearing a second mixture including the prepolymer composition, a continuous phase liquid, and a stabilizing compound to create a miniemulsion; and

flowing the miniemulsion within a polymerization reactor and heating the miniemulsion at a second polymerization temperature to form polymeric particles wherein the formation of the polymeric particles occurs while the miniemulsion flows within the reactor.

2. The process of claim 1, wherein the miniemulsion is subjected to a pressure ranging from about 100 to about 600 kPa while the miniemulsion flows within the reactor.

3. The process of claim 1, wherein the first polymerization temperature ranges from about 100 to about 145 degrees C.

4. The process of claim 1, wherein the second polymerization temperature ranges from about 100 to about 145 degrees C.

5. The process of claim 1, wherein the reactor is a tubular-flow reactor.

6. The process of claim 1, wherein the miniemulsion flows within the reactor at a volumetric flowrate of about 0.1 to about 10 ml/minute.

7. The process of claim 1, wherein the heating of the first mixture and the shearing of the second mixture are accomplished in a batch mode to provide a batch amount of the miniemulsion.

8. The process of claim 1, wherein the heating of the first mixture and the shearing of the second mixture are accomplished in a continuous mode to provide a continuous amount of the miniemulsion.

9. The process of claim 1, wherein the heating the first mixture is ended when about 1 to about 50% of the monomer is polymerized.

10. The process of claim 1, wherein the polymeric particles includes a compound exhibiting a molecular weight polydispersity of from about 1.1 to about 3.0.

11. The process of claim 1, wherein the continuous phase liquid is water.

12. The process of claim 1, wherein the polymeric particles have a volume average diameter of from about 25 nanometers to about 1 micrometer.

13. The process of claim 1, wherein the first mixture further includes a co-monomer.

14. A process comprising:

heating to a first polymerization temperature a first mixture comprising a first free radical polymerizable monomer, a first free radical initiator, and a first stable free radical compound to polymerize only a portion of the first monomer, resulting in a prepolymer composition;

shearing a second mixture including the prepolymer composition, a continuous phase liquid, and a stabilizing compound to create a miniemulsion; and

flowing the miniemulsion within a polymerization reactor and heating the miniemulsion at a second polymerization temperature to form polymeric particles wherein the formation of the polymeric particles occurs while the miniemulsion flows within the reactor,

wherein there is added to the second mixture, the miniemulsion, or both the second mixture and the miniemulsion at any time prior to the formation of the polymeric particles a second free radical initiator, a second free radical polymerizable monomer, and an optional second stable free radical compound, wherein at least one of the second initiator and the second monomer includes a functional group, wherein the polymeric particles each includes a compound with the functional group covalently bound and with the functional group disposed on the particle surface.

15. The process of claim 14, wherein the first stable free radical compound and the second stable free radical compound are the same.

16. The process of claim 14, wherein the second initiator includes the functional group.

17. The process of claim 14, wherein the second monomer includes the functional group.

18. The process of claim 14, wherein the second initiator includes the functional group and the second monomer includes the same or different functional group.

19. The process of claim 14, wherein the first mixture further includes a co-monomer.